

1                   **METHOD AND PLATFORM FOR**

2                   **USING WIRELESS MULTIMEDIA FILES**

3                   **BACKGROUND OF THE INVENTION**

4                   **1. Field of the Invention**

5                   The present invention relates to a method for using wireless multimedia files and  
6                   more particularly to a method that is adapted to allow a multimedia file including digital  
7                   compressed video and voice components to be played on a hand-held device with low  
8                   frequency bandwidth.

9                   **2. Description of Related Art**

10                  As electronic commerce has developed on the web, each of the web sites are  
11                  designed in ASP (active service page) format to attract more customers. The ASP includes  
12                  considerable images, video, and voice etc. files designed as a multimedia page.  
13                  Transmitting the web page, such as the multimedia pages, to the client needs enough  
14                  bandwidth. But it is difficult to transmit the multimedia pages to the client via the wireless  
15                  web.

16                  Lastly, a SMIL (synchronized multimedia integration language) is developed to  
17                  design the multimedia pages easily. Therefore, there are many media computers, as  
18                  RealNetworks™ and QuickTime™, trying to develop multimedia browsers to support the  
19                  SMIL format. The multimedia browsers, such as Fluition™ by Confluent Technologies™,  
20                  Grins™ by Oratrix™, MAGpie™, captioning tool by WGBH™, Real Slideshow 2.0™  
21                  by RealNetworks™ and SMIL Composer SuperToolz™ by HotSausage™ are provided  
22                  for user downloading. With reference to Fig. 7, a program file of the SWIL is shown,  
23                  wherein the program includes two video files (003.mpeg and 001.mpeg) and one picture  
24                  (002.jpg). Referring to Fig. 8, a browser (50) executes the SMIL program, and shows two

1 video (60)(61) corresponded to the two video files of the program and one picture (62)  
2 corresponded to the one picture of the program at the same time. Therefore, the web sites  
3 are designed toward multimedia files to demonstrate products and services on the web.

4 Recently, the mobile hand-held device is popular and not only enables transmitting  
5 voice information, but also provides data information to each other. The WAP (wireless  
6 active page) is developed to transfer the HTML page to XML (eXtensible Markup  
7 Language) page, that is, the HTML (Hypertext Markup Language) page is able to be shown  
8 on a monitor of the mobile hand-held device via WAP. The HTML pages involve fewer data  
9 bits than the multimedia page, but WAP does not have enough transmitting bandwidth to  
10 transmit the multimedia format. That is, the monitor of the mobile hand-held device does  
11 not browse the multimedia pages from the web, or even connect to the Internet via wireless  
12 net.

13 The present invention provides a transferring method and platform to make the  
14 wireless hand-held device be able to browse the multimedia on the web.

15 **SUMMARY OF THE INVENTION**

16 The objective of the present invention is to provide a transferring method wherein  
17 the multimedia page of web is able to transmit a multimedia format adapted for a hand-held  
18 device.

19 Other objects, advantages, and novel features of the invention will become more  
20 apparent from the following detailed description when taken in conjunction with the  
21 accompanying drawings.

22 **BRIEF DESCRIPTION OF THE DRAWINGS**

23 Fig. 1 is a structure of the WSMIL (wireless synchronized multimedia integration  
24 language) in accordance with the present invention;

1 Figs. 2A~2G are program examples according to the WSMIL of the Fig.1;

2 Fig. 3 is a block diagram of a transmitting platform in accordance with the present

3 invention;

4 Fig. 4 is an active flow of the transmitting platform and the hand-held device in

5 accordance with the present invention;

6 Fig. 5 is a program example of an embodiment of the WSMIL file in accordance

7 with the present invention;

8 Fig. 6 is a frame of the Fig. 5 shown on a browser of a hand-held device;

9 Fig. 7 is a program of a SMIL multimedia file; and

10 Fig. 8 is a frame of the Fig. 7 shown on a browser of a common electronic device

11 such as PC browser.

#### 12 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

13 A WSMIL (wireless synchronized multimedia integration language) develops to

14 base on an XML (eXtensible Markup Language), especially using the WSMIL to design

15 multimedia files is able to be adapted for a hand-held device browsing a multimedia file

16 from the World Wide Web. A standard of the WSMIL allows playing of one multimedia file

17 with a compressed video and a compressed voice components when the hand-held device

18 send a browsing request to web site of the World Wide Web .Wherein the WSMIL

19 multimedia file uses card elements to separate multimedia files to one multimedia file, and

20 then uses class elements to classify related multimedia files. Therefore, the WSMIL is able

21 to show one multimedia file on a browser of the hand-held device send a browsing request

22 to the web site designed by WSMIL.

23 With reference to Fig. 1, a structure of the WSMIL is shown. Components of the

24 WSMIL multimedia file are at least one head element and at least one card element. An

1 attribute of each card element defined by an id (identifying number). The head element  
2 includes multimedia information, such as the author and production date of the WSMIL  
3 multimedia file, and the class element is used for classifying the card elements related each  
4 other. Besides, the card element includes information with a timing order and linking space  
5 of the multimedia file for deciding the play multimedia sequence on the browser.

6 With reference to Figs. 2A and 2B, hyper linking examples of the WSMIL file are  
7 shown. A URL (Uniform Resource Locator) address, [www.host2.com/anther.wsmil](http://www.host2.com/anther.wsmil), is  
8 combined on a D image for providing a user to click, and then connects to the URL address.

9 A size of an A image with the URL address is able to adjust by using an anchor element and  
10 a cord element, as shown in Fig. 2B. Besides, a linking time from the A image clicked is  
11 able to be preset by using a begin element and an end element. As shown in Fig. 2B, when  
12 the A image is clicked, the hyper linking is begun to execute after two minutes.

13 Referencing to the Fig. 2C, the WSMIL multimedia file further comprises  
14 substituting elements to replace some of the multimedia pages with video and voice files to  
15 show on the browser of the hand-held device by the image or test format. The substituting  
16 elements are an alt element and an altsrc element. An example is shown in Fig. 2C, when a  
17 digital video file, A..mpg, does not show on the browser, and then a B.txt replaces the  
18 A.mpg to show on the browser. If the voice file, C.mp3, does not show, a text "The Audio  
19 Can Not Be Shown" replaces the voice file to show.

20 With reference to Fig. 2D, an example of the WSMIL file with system parameters is  
21 shown. The system parameters are designed for detecting a connecting rate of a client  
22 device. Therefore, the multimedia file is designed for a different showing frame, as shown  
23 Fig. 2D, when the connecting rate between a Web site with a URL address and the client  
24 device is over 56000 bits/sec, and then A.mpg is shown on the browser of the client device.

1 If the connecting rate is less than 56000 bits/sec, a frame of a B.jpg is shown on the browser.  
2 Using the system parameter elements provides a content adaptation service according to  
3 different client devices.

4 With reference to Figs. 2E and 2F, examples of multimedia files using layout  
5 elements to design position of multimedia components are shown on the browser. The  
6 layout elements are region element, % parameter, pixel etc. parameters.

7 With reference to Fig. 2G, an example of the WSMIL multimedia files is playing  
8 order. Because WSMIL is able to allow one multimedia file to show each required send, a  
9 video A / an audio A and a video B / an audio B are shown at different times.

10 As per the above description, a WSMIL multimedia file is able to detect the client  
11 device and decides how much load of the related information is downloaded to the browser.  
12 Especially, the WSMIL multimedia file always allows one video file and one voice file to  
13 show, thus the multimedia file is able to be easily demonstrated on the browser of a  
14 hand-held device.

15 Referencing to Fig. 3, a structure of a transferring platform for transmitting an  
16 SMIL multimedia file to a WSMIL multimedia file applied on the mobile client. A WEB  
17 structure comprises a client device (10), a WAP gateway (20) offering the hand-held device  
18 a way to connect to the Web, and a Web server (30) connected to the WAP gateway (20).  
19 The platform (40) connects a web server (30) with the client device (10), wherein SMIL  
20 Documents and multimedia resources according to the SMIL files are connected to the  
21 platform (40). The client device (10), i.e. the hand-held device, uses a PCMCIA to connect  
22 an IEEE802.11 wireless web card that is able to have dual connection with the WAP  
23 gateway (20).

24 The platform (40) comprises a detector (401), a filter (402), a captor (403), a

1 converter (404), and an extractor (405). The detector (401) detects the states of the client  
2 device (10) and then decides if the SMIL file should be transmitted. The filter (402)  
3 connected the SMIL documents with the detector (401) transfers the SMIL files to WSMIL  
4 file. Because the WSMIL bases on the XML, the filter is an XML parser. The captor (403)  
5 connected to the multimedia resource with a plurality of multimedia components catches  
6 multimedia elements that the WSMIL needs, and stores them. The converter (404) catches  
7 the multimedia elements from the captor (403) and converts the multimedia elements to low  
8 data bits format, that is, a video file converts to a digital compressed file and a voice file  
9 converts to a digital compressed file. The extractor (405) connected to the filter (402) and  
10 the converter (404) transmits the WSMIL file and the low data bits of the digital compressed  
11 multimedia elements to the client device send browsing require to the web site offering  
12 SMIL multimedia files.

13 Referencing to Figs.3 and 4, an operating flow of the platform is shown when the  
14 client device (10) sends a browsing request to the platform (40). Firstly, the detector (401)  
15 detects states of the client device (10) such as the transmitting rate in the connection with  
16 the platform (40). If the transmitting rate is able to allow to download big data bits of the  
17 SWIL multimedia files, the platform (40) does not convert the SWIL files to the WSMIL  
18 file, and directly sends the SWIL files to the client device (10). But if the transmitting rate is  
19 not able to browse the SMIL multimedia files then the detector (401) catches the SMIL files  
20 and sends them to the filter (402), such as an XML PARSER. The filter (402) extracts an  
21 SMIL DOM tree from the SMIL file and then transfers the SMIL DOM tree to a WSMIL  
22 DOM tree. Secondly, the captor (403) catches the multimedia components according to  
23 URL addresses from the multimedia resource. Then the converter (404) converts the  
24 multimedia components to a digital compressed format such as mpeg and mp3 formats for

1 sending the multimedia components through the extractor (405) to the client device (10),  
2 especially, the hand-held device. Therefore, the platform is able to transfer the SMIL file to  
3 the WSMIL file browsed on the hand-held device.

4 With reference to Fig. 5, a program of the WSMIL file corresponds to the frame  
5 shown in Figs. 6A and 6B. Firstly, the WSMIL file includes a first video file (003.mpeg) and  
6 a second file (001.mpeg), and one picture file (002.jpg), wherein a first card element  
7 describes the first video file, and a second card element describes the second video file and  
8 the picture file. When the client downloads this WSMIL file and the multimedia  
9 components to a browser (11) of the hand-held device (not shown), the browser (11)  
10 executes the program and then show one video (111), as shown in Fig.6A. When the first  
11 video (111) has finished playing, the browser (11) follows the card element order, that is the  
12 second card element, to show the second video (112) and the picture (113), as shown in Fig.  
13 6B. The one video file has fewer data bits than at least two video files, so as to allow the  
14 WSMIL multimedia file to be downloaded quickly.

15 Although the present invention has been explained in relation to its preferred  
16 embodiment, it is to be understood that many other possible modifications and variations  
17 can be made without departing from the spirit and scope of the invention as hereinafter  
18 claimed.